Cisco Aironet 1550 Series Outdoor Access Point

Cisco® Aironet® 1550 Series outdoor access points are designed to support a wide variety of applications. There are several access point models and optional accessories available to suit the requirements of particular deployments. A fully operational system requires the following minimum items:

- Access point
- Power
- Antennas - 2.4 GHz, 5 GHz, or dual-band
- Mounting bracket

Additionally, you may need the following, depending on your particular deployment. Options for the 1550 Series include:

- Fiber module
- Battery

Use this guide to identify which items you need for your deployment. Note that accessories are available as a configurable option and/or as a spare. An equal sign at the end of the part number indicates that the part is a spare - for example, AIR-PWRINJ1500-2=.

You may need to remove any option you installed when returning your access point to Cisco. Consult your Cisco representative for additional assistance ordering mesh and other networking equipment.

Access Points

The Cisco Aironet 1550 Series is available in several models.

Cisco Aironet 1552E and 1552EU Outdoor Access Points

The Cisco Aironet 1552E/1552EU Outdoor Access Points are the standard model, dual-radio system with external antenna ports that are compliant with IEEE 802.11a/n (5-GHz) and 802.11b/g/n (2.4-GHz) standards.

The 1552E has three external antenna connections for three dual-band antennas. The 1552EU has six external antenna connections, three for 5-GHz and three for 2.4-GHz antennas.

The 1552E and 1552EU have Ethernet and fiber Small Form-Factor Pluggable (SFP) backhaul options, along with the option of a battery backup. These models also have a Power-over-Ethernet (PoE) out port and can power a video surveillance camera. Highly flexible models, the Cisco Aironet 1552E and 1552EU are well equipped for municipal and campus deployments, video surveillance applications, mining environments, and data offload.

Cisco Aironet 1552C and 1552CU Outdoor Mesh Access Points

Where service providers have already invested in a broadband cable network, the Cisco next-generation outdoor wireless mesh can seamlessly extend network connectivity with the Cisco Aironet 1552C and 1552CU Outdoor Mesh Access Points by connecting to its integrated cable modem interface.

The 1552C and 1552CU access points are dual-radio systems with DOCSIS 3.0/EuroDOCSIS 3.0 (8 x 4 HFC) cable modem for power and backhaul. They have dual-band radios that are compliant with IEEE 802.11a/n (5-GHz) and 802.11b/g/n (2.4-GHz) standards.

The 1552C has an integrated, three- element, dual-band antenna and easily fits within the 30-cm height restriction for service providers. The 1552CU has six external antenna connections, three for 5-GHz and three for 2.4-GHz antennas. These models are perfect for 3G/4G data offload applications and public Wi-Fi.

Cisco Aironet 1552I Outdoor Access Points

The Cisco Aironet 1552I Outdoor Access Point is a low-profile, lighter-weight model in the 1550 Series. The smaller size and sleeker look helps it blend in with the surrounding environment. The smaller power supply also makes it a more energy-efficient product. The 1552I does not have PoE out port or a fiber SFP port.

Cisco Aironet 1552H Outdoor Access Points

This access point is designed for hazardous environments like oil and gas refineries, chemical plants, mining pits, and manufacturing factories. The Cisco Aironet 1552H Outdoor Access Point is Class 1, Div 2/Zone 2 hazardous location certified. It has options similar to the 1552E, with the exception of the battery backup.

Table 1 lists the part numbers for the various access point models in the 1550 Series.

Table 1.   Outdoor Access Point Models in the Cisco Aironet 1550 Series

Product ID	Description
AIR-CAP1552E-x-K9	802.11N Outdoor Mesh Access Point, Dual band Ext. Antenna
AIR-CAP1552EU-x-K9	802.11N Outdoor Mesh Access Point, Single Band Ext. Antenna
AIR-CAP1552C-x-K9	802.11N Outdoor Mesh Access Point, Cable Modem, Internal Antenna
AIR-CAP1552CU-x-K9	802.11N Outdoor Mesh Access Point, Cable Modem, Single band Ext. Antenna
AIR-CAP1552I-x-K9	802.11N Outdoor Mesh Access Point, Dual band, Internal Antenna
AIR-CAP1552H-x-K9	802.11N Outdoor Mesh Access Point, Hazardous Locations

In Table 1, "x" is a placeholder for the regulatory domain designator. Please see http://www.cisco.com/go/aironet/compliance to determine which regulatory domain is used in your country. Note that the regulatory domain used in your country may differ with the access point model, and that some models are not available for all countries.

The following contents are included with every model:

- Access point
- Grounding lug
- DC terminal block
- Liquid tight adaptors for sealing cable ingresses
- Sealant for the antenna connections
- Anti-seizing compound for the mounting brackets

Power

Table 2 provides the powering options for each model.

Table 2.   Powering Options the Cisco Aironet 1550 Series

Product ID	AC	DC	Power Injector
AIR-CAP1552E-x-K9	100-480 VAC	12 VDC	Yes
AIR-CAP1552EU-x-K9	100-480 VAC	12 VDC	Yes
AIR-CAP1552C-x-K9	45-90V quasi-square	12 VDC	
AIR-CAP1552CU-x-K9	45-90V quasi-square	12 VDC	
AIR-CAP1552I-x-K9	100-277 VAC	12 VDC	
AIR-CAP1552H-x-K9	100-240 VAC	12 VDC	Yes

AC Power

The 1552E, 1552EU, and 1552I access points have a 3-pin, threaded AC power connector. Table 3 lists the power cord options available when you use AC power.

Table 3.   AC Power Cord Options

Product ID	Description
AIR-CORD-R3P-40NA=	Power cord, 40 ft, North American Plug
AIR-CORD-R3P-40UE=	Power cord, 40 ft, European Harmonized, Unterminated
AIR-PWR-ST-LT-R3P=	Power cord, 4 ft, Street Light Tap

The 1552H model requires a discrete wired connection to internal terminal block.

The AIR-CORD-R3P-40UE= connects to the access point on one end, and is not terminated on the other end. You will need to source a plug appropriate for your installation.

When AC power is not used (for example, when you use PoE or 12 VDC to power the access point), you should cover the unused connector. A cover is included with the power injector and is also available from Remke (visit http://www.remke.com and search for part number 75-0086).

Power over Ethernet

When you power the access point over Ethernet, the access point does not supply 802.3af PoE to an Ethernet-attached device. When you use Power over Ethernet, use the power injector listed in Table 4.

Table 4.   Power Injector for Use with Power over Ethernet

Product ID	Description
AIR-PWRINJ1500-2=	1520/1550 Series Power Injector

Do not use any other power injector or switch for Power over Ethernet with the 1550 Series access points. The 1550 Series is approved for use only with the AIR-PWRINJ1500-2=. You must also specify the country type power cord for the power injector.

The AIR-PWRINJ1500-2= is for indoor use only. It has built-in surge protection, but you may also need to install a surge protector at the building entry point. Please check your local electrical regulations.

The 1550 Series access points use a standard RJ-45 Ethernet connector. Cisco does not provide an Ethernet cable for the 1550 Series. You will need to source an outdoor-rated, Category 5 or better Ethernet cable and shielded RJ-45 connectors from a local supplier. Liquid-tight adapters are provided with the access point to seal this cable entry point from weather.

Power over Cable
The 1522C and 1552CU are powered by the CATV plant power supply system over coaxial cable through its F-connector. A cable plant power supply system is built into the 1552C and CU; it does not need to be separately ordered.

DC Power
All Cisco Aironet 1550 Series Access Points support power from an external 12 VDC power supply, minimum 50 watts. A terminal block is included with your access point for this purpose, with liquid-tight adapters to weather-proof the connection. When using DC power, please consult the Hardware Installation Guide for instructions on how to correctly assemble the connector.

The 1550 Series can be installed with redundant power sources. When multiple power sources are available, the access point will use power in the following priority:

1. AC power or Power over Cable
2. DC power
3. Power over Ethernet
4. Battery

Battery
The Cisco Aironet 1550 Series Access Points can be deployed with a rechargeable lithium-Ion battery for backup power during power outages (Table 5).The battery provides approximately one to two hours of power with typical traffic volume (50 percent duty cycle). Actual battery time will vary depending on several factors, including traffic volume, temperature, and whether an auxiliary device draws Power over Ethernet. Note that the battery can be used only with the 1552E and 1552EU models. The battery can be configured to the access point when ordering, customer installed, or replaced in the field.

Table 5.   Battery for the Cisco Aironet 1550 Series

Product ID	Description
AIR-1520-BATT-6AH	1520/1550 Series Battery Backup Unit

Antennas

Cisco Aironet 1550 Series Access Points are equipped with a combination of radios operating in the 2.4- and 5-GHz bands. Both radios are capable of two transmit and three receive streams using Maximal Ratio Combining (MRC), which takes advantage of multipath signals received across up to three antennas to improve signal quality.

The 1552C and 1552I have internal omni antennas (2 and 4 dBi gain for 2.4 and 5 GHz respectively). No antennas are required to be ordered with these models. For the other 1550 models, table 6 describes the antennas available for the 1550 Series, listing part numbers for the antennas, as well as gain and other details.

Table 6.   Antennas for the Cisco Aironet 1550 Series

Product ID	Frequency Band	Gain	Type	Supported Access Point and Required Quantity
AIR-ANT2547V-N	2.4/5 GHz	4/7 dBi	Omnidirectional	1552E (3) 1552H (3)
AIR-ANT2588P3M-N=	2.4/5 GHz	8/8 dBi	Directional	1552E (1)
AIR-ANT2420V-N	2.4 GHz	2 dBi	Omnidirectional	1552EU (3) 1552CU (3)
AIR-ANT2450V-N	2.4 GHz	5 dBi	Omnidirectional	1552EU (3) 1552CU (3)
AIR-ANT2480V-N	2.4 GHz	8 dBi	Omnidirectional	1552EU (3) 1552CU (3)
AIR-ANT2413P2M-N=	2.4 GHz	13 dBi	Directional	1552EU (1) 1552CU (1)
AIR-ANT5140V-N	5 GHz	4 dBi	Omnidirectional	1552EU (3) 1552CU (3)
AIR-ANT5180V-N	5 GHz	8 dBi	Omnidirectional	1552EU (3) 1552CU (3)
AIR-ANT5114P2M-N=	5 GHz	14 dBi	Directional	1552EU (1) 1552CU (1)

For additional antenna specifications, see the Cisco Aironet Antenna and Accessories Reference Guide.

The access points are provided with a moldable sealant to protect the antenna connector from weather. Consult the installation guide for proper installation.

Access Point with GPS Option Part Numbers

Cisco Aironet® 1550 Series outdoor access points can be ordered with a GPS receiver and antenna to provide location information about the access point (Table 7). The GPS receiver board is installed in the access point, and a GPS antenna and mounting bracket are preassembled on the access point unit. New top-level part numbers have been created for the versions with GPS. The GPS function is not available on the Cisco Aironet 1552H or 1552S.

Table 7.   GPS-Enabled Cisco Aironet 1550 Series Models

Part Number	Description
AIR-CAP1552E-x-K9G	802.11N Outdoor Mesh Access Point, Dual band Ext. Ant., w/ GPS
AIR-CAP1552EU-xK9G	802.11N Outdoor Mesh Access Point, Single Band Ext. Ant., w/ GPS
AIR-CAP1552C-x-K9G	802.11N Outdoor Mesh Access Point, Cable Modem, Internal Ant., w/ GPS
AIR-CAP1552CU-xK9G	802.11N Outdoor Mesh Access Point, Cable Modem, Single band Ext. Ant., w/ GPS
AIR-CAP1552I-x-K9G	802.11N Outdoor Mesh Access Point, Dual band, Internal Ant., w/ GPS

As in Table 1, the "x" is a placeholder for the regulatory domain designator. Please see the note following Table 1 for more information.

Software Option

Cisco Aironet 1550 Series outdoor access points can be ordered with unified (controller-based) software or with autonomous software. To operate as part of a mesh network (either as a root access point or mesh access point), the unified software is required. The autonomous, or standalone, software allows the access point to operate independently to serve clients and allows the access point to function as a work group bridge (WGB). The two software option part numbers are listed in Table 8. If no software is selected, the default selection is SWAP1500-BTIMGE-K9.

Table 8.   Software Options for the Cisco Aironet 1550 Series

Part Number	Description
SWAP1500-BTIMGE-K9	Cisco 1520/1550 Series Boot Image - Unified SW
S155W7K9-15202JB*	Cisco 1550 Series IOS WIRELESS LAN - Autonomous

* The autonomous software option for the Cisco Aironet 1552C and 1552CU will be available at a later date.

Mounting Brackets

Cisco Aironet 1550 Series Outdoor Access Points can be mounted to poles or CATV plant strands (Table 9).The pole-mounting brackets are not provided with the access point. The strand-mounting brackets are used with the 1552C and 1552CU models and can be ordered as options with the access point or separately as spares.

Table 9.   Mounting Brackets for the Cisco Aironet 1550 Series

Product ID	Description
AIR-ACCPMK1550=	1550 Pole Mount Bracket Kit
AIR-ACCSMK1550	1550 Strand Mount Bracket Kit

The pole-mount kit is adjustable for any pole angle: horizontal, vertical, and any angle in between. It can also be used to mount the access point to a flat surface, such as a wall. To prevent the mounting bracket and access point from fusing together, anti-seizing compound is included with the access point. The pole- mount kit includes two stainless-steel-band straps and buckles to fit poles up to 16 inches in diameter. For larger poles, consult a local provider. The banding can be secured using the tool listed in Table 10.

Table 10.   Banding Installation Tool for the Cisco Aironet 1550 Series

Product ID	Description
AIR-BAND-INST-TL=	Band Installation Tool

The high-gain directional antennas (AIR-ANT2413P2M-N= or AIR-ANT5114P2M-N=) are supplied with a pole-mount kit. If you want to directly mount these antennas to the access point pole-mount bracket or strand-mount bracket, you will need the antenna bracket-mounting kit for each antenna (Table 11).

Table 11.   Antenna Mounting Kit for Directional Antennas for the Cisco Aironet 1550 Series

Product ID	Description
AIR-ACCAMK-1=	Directional Antenna Mount Kit

Network Connection

The Cisco Aironet 1550 Series Access Points can be connected to the network wirelessly or through a wired Ethernet, fiber, or cable modem connection.

Wireless

An access point that connects to the network through another access point over a wireless backhaul is known as a mesh access point (MAP). The backhaul radio is built in, and no wired connection is needed for MAPs. An access point that also acts as the gateway for mesh nodes is known as a root access point (RAP). RAPs connect to the network through a wired connection, either Ethernet, fiber, or cable modem. Liquid-tight adapters are provided with your access point to prevent water ingress.

Ethernet

The 1550 Series supports 10/100/1000 Gigabit Ethernet using a shielded RJ-45 connector with minimum Category 5 cable. Please see your local supplier for an outdoor-rated cable and shielded connectors.

Fiber

Alternatively, the 1550 Series can use one of the temperature-rated Small Form-Factor Pluggable (SFP) modules. There is also an optional kit with fiber reels to store excess fiber inside the access point (Table 12).

Table 12.   Fiber SFPs for the Cisco Aironet 1550 Series

Product ID	Description
GLC-SX-MM-RGD=	1000BaseSX Multimode Rugged SFP module
GLC-LX-SM-RGD=	1000BaseLX Singlemode Rugged SFP module
AIR-1520-FIB-REEL=	Fiber Reel Installation Kit

Note: The fiber SFP needs to be installed in the access point. See the Hardware Installation Guide for instructions.

Cable Modem

The 1552C and 1552CU models support a DOCSIS/EuroDOCSIS 3.0 cable modem to connect to the cable headend.

Table 13 summarizes the backhaul options available for each model.

Table 13.   Network Connections Types for the Cisco Aironet 1550 Series

Product ID	Wireless (MAP)	Ethernet	Fiber	Cable
AIR-CAP1552E-x-K9 AIR-CAP1552E-x-K9G	Yes	Yes	Yes	
AIR-CAP1552EU-x-K9 AIR-CAP1552EU-xK9G	Yes	Yes	Yes	
AIR-CAP1552C-x-K9 AIR-CAP1552C-x-K9G	Yes			Yes
AIR-CAP1552CU-x-K9 AIR-CAP1552CU-xK9G	Yes			Yes
AIR-CAP1552I-x-K9 AIR-CAP1552I-x-K9G	Yes	Yes		
AIR-CAP1552H-x-K9	Yes	Yes	Yes	

Other Requirements and Resources

Software Release Requirements

The 1550 Series requires the minimum software releases noted in Table 14.

Table 14. Minimum Software Releases

Product ID	Minimum Software Release
AIR-CAP1552E-x-K9 AIR-CAP1552E-x-K9G	7.0.116.0 or later 7.3.101.0 or later
AIR-CAP1552EU-x-K9 AIR-CAP1552EU-xK9G	7.3.101.0 or later 7.3.101.0 or later
AIR-CAP1552C-x-K9 AIR-CAP1552C-x-K9G	7.0.116.0 or later 7.3.101.0 or later
AIR-CAP1552CU-x-K9 AIR-CAP1552CU-xK9G	7.3.101.0 or later 7.3.101.0 or later
AIR-CAP1552I-x-K9 AIR-CAP1552I-x-K9G	7.0.116.0 or later 7.3.101.0 or later
AIR-CAP1552H-x-K9	7.0.116.0 or later

Note: Additional functionality is available to the access points with more recent releases. Please see the applicable release notes for more information about features available with newer releases.

Cisco Technology Developer Program

Related solutions are available through our Cisco Technology Developer Partner Program partners. For more information, visit: http://www.cisco.com/go/ctdp.

Ordering Information

To place an order, visit the Cisco ordering website at: http://www.cisco.com/en/US/ordering/index.shtml.